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EXAMINER

PHAM, THIERRY L

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/575,198

Applicant(s)

LAPSTUN ET AL.

Examiner

Thierry L. Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-51 and 53-71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-51 and 53-71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/8/05.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

- This action is responsive to the following communication: an Amendment filed on 1/23/06.
- Claims 1-9, 11-51, 53-71 are pending; claims 10 & 52 have been canceled; claim 71 is newly added.
- IDS filed on 2/8/05 has been considered by the examiner.
- Amendment filed with respect to the specification on 6/3/04 has been considered and entered by the examiner.

Claim Objections

Claims 53, 60 are objected to because of the following informalities: Claims 53 & 60 cannot be dependent upon canceled claim 52. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 71 is rejected under 35 U.S.C. 102(e) as being anticipated by Dymetman et al (US 6330976).

Regarding claim 71, Dymetman discloses a printer (supplier's printer for printing coded data onto print media known as "coded substrate", col. 11, lines 50-65) for printing a first interface onto a first surface, thereby to generate a first interface surface, the first interface surface including first coded data (coded data, col. 11, lines 45-65) and being at least partially based on first document data that includes first identity data indicative of at least one identity

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(i.e., page-id-code, col. 11, lines 45-65) the identity being associated with a region of the first interface, the printer including:

- an actuator (inherently, all printer includes an actuator such a CPU, col. 11, lines 50-65);
- a coded data generator (generates codes such as page-id-code, col. 11, lines 50-65) configured to generate the first coded data based at least partially on the first identity data, the coded data including a plurality of tags (coded data includes plurality of tags, col. 7, lines 42-52) wherein each tag is indicative of the identity of the region (zone identity, col. 3, lines 55-67) and,
- a printing mechanism (inherently, all printer includes a printing mechanism such as printhead);
- wherein the printer is configured to print the first interface onto the first surface (surface of the sheet, col. 11, lines 60-62), using the printing mechanism, in response to actuation of the actuator (CPU of printer is for controlling the operation of printer such as print head).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 11-20, 22-51, 53-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knowles (US 6622917), Dymetman et al (US 6330976), and further in view of Tanaka et al (US 6145434).

Regarding claim 1, Knowles teaches a printer (printer, col. 17, lines 29-33) for printing a first interface onto a first surface (prints URL-encoded bar code symbols on a print medium, col. 17, lines 29-33 and abstract), thereby to generate a first interface surface, the first interface including first coded data and being at least partially based on first document data that includes first identify data indicative of at least one identity, the identity being associated with a region of the first interface, the printer including:

- an actuator (printer 35, fig. 1, it is inherently that all printers include an actuator for actuating the inks).

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- a coded data generator (Composing/Printing Module generates coded data, col. 12, lines 6-67, and the printer prints URL-encoded barcode symbols, col. 17, lines 29-33) configured to generate the first coded data based at least partially on the first identity data; and
- a printing mechanism (printer 35, fig. 1, col. 17, lines 29-33);
- wherein the printer is configured to print the first interface onto the first surface (URL encoded bar code symbols printed on various print medium, abstract), using the printing mechanism, in response to actuation of the actuator (printer 35, fig. 1, it is inherently that all printers include an actuator for actuating the inks).

Knowles does not explicitly teach wherein the first coded data is not substantially visible to an average unaided human eye under daylight or ambient lighting conditions.

Dymetman, in the same field of endeavor for printing, teaches the first coded is not substantially visible to an average unaided human eye under daylight or ambient lighting conditions (invisible coded markings on paper, col. 3, lines 50-55 and col. 11, lines 46-52).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Knowles as per teachings of Dymetman because of a following reason: (●) to prevent fraudulent uses of identifier (Dymetman, col. 4, lines 10-15); (●) to reduce distortion of document appearance (Dymetman, col. 5, lines 39-45).

However, combinations of Knowles and Dymetman fail to teach and/or suggest a printer is configured to print the coded data and visible information substantially simultaneously.

Tanaka, in the same field of endeavor for printing, teaches a printer is configured to print the coded data and visible information substantially simultaneously (col. 11, lines 49-59).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Knowles and Dymetman as per teachings of Tanaka because of a following reason: (●) to increase printing speed by printing simultaneously.

Therefore, it would have been obvious to combine Knowles, Dymetman with Tanaka to obtain the invention as specified in claim 1.

Regarding claim 2, Knowles further teaches a printer according to claim 1, wherein the first interface includes visible information (visible title for URL code, figs. 7-9) in addition to the first coded data, being printed substantially in the same region (same region as shown in fig. 8).

Regarding claim 3, Knowles further teaches a printer according to claim 1, wherein the visible information is indicative, to a user, of one or more options, the printer being configured to: (1) receive indicating data (data indicating of URL address, fig. 7-9) indicative of secondary document data associated with at least one of the options, the indicating data being sensed, by a sensing device (bar code symbol reader, fig. 1, col. 4, lines 55-67), from the first coded data, when one of the options is designed using the sensing device; (2) generate a second coded data (URL-encoded bar symbol of Code 93 Symbology, fig. 9, col. 5, lines 50-56) based at least partially on the secondary document data; and (3) print (printer, fig. 1) a second interface onto (print media, abstract) a second surface on the basis of the indicating data.

Regarding claim 4, Knowles further teaches a printer according to claim 3, wherein the printer includes an input module configured to: (1) receive, from the sensing device (barcode symbol reader, fig. 1), the indicating data; (2) generate second indicating data based on the first indicating data, the second indicating data being at least partially indicative of the response data (URL-encoded bar symbol of Code 93 Symbology, fig. 9, col. 5, lines 50-56); and (3) send (sending coded data to the computer system, fig. 1) the second indicating data to a computer system; (4) the printer (printer 35, fig. 1) being configured to receive the secondary document data from the computer system.

Regarding claim 5, Knowles further teaches a printer according to anyone of the preceding claims, wherein the options include any one or more of the following: printer status; printer consumable status; an upper level of a hierarchical help menu; an upper level of a network document directory; and a document function menu (URL encoded menus, col. 5, lines 25-30).

Regarding claim 6, Knowles further teaches a printer according to claim 1, wherein the first coded data is indicative of at least one reference point (col. 15, lines 50-60) of a region associated with the first interface.

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Regarding claim 7, Knowles further teaches a printer according to claim 6, wherein the at least one reference point is determined on the basis of a coded data layout (layout menu, fig. 6, col. 12, lines 5-54).

Regarding to claim 8, Knowles further teaches a printer according to claim 7, wherein the printer is configured to received the coded data layout (layout menu, fig. 6) from the computer system (computer system, fig. 2, col. 12, lines 5-54).

Regarding claim 9, Knowles further teaches a printer according to claim 8, further including storage means (information storage, col. 12, lines 6-54) for storing a plurality of coded data layouts (fig. 6), the printer being configured to: receive (communication system, fig. 1), from the computer system, layout selection information indicative of one of the coded data layouts; and use the layout selection information to select one of the stored coded layouts for use in determining the at least one reference point (URL address, fig. 9).

Regarding claim 11, Dymetman further teaches a printer wherein the first coded data includes at least one tag (URL coded tag, col. 5, lines 10-44), each tag being indicative of the identity of the region (location identifier, col. 3, lines 55-67).

Regarding claim 12, Knowles further teaches a printer according to claim 11, wherein the first coded data includes a plurality of the tags (fig. 6b), the coded data generator being configured to ascertain a position (i.e., adjusting position of tag via GUI interface, fig. 6, col. 12, lines 25-54) of each tag prior to printing, the respective being determined on the basis of a coded data layout (layout menu, fig. 6).

Regarding claims 13-14, Knowles further teaches a printer according to claim 12, wherein the coded data generator is configured to receive the coded data layout from the computer (sends coded data layout via the communication network, fig. 1) device prior to printing the first coded data.

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Regarding claim 15, Dymetman further teaches a printer, wherein each of the tags includes: first identity data defining a relative position (col. 3, lines 55-67) of that tag; and second identity data identifying the region (identifies a location of a zone within a page, col. 3, lines 55-67).

Regarding claim 17, Knowles further teaches a printer according to anyone of claim 1 to 4 or 6 to 10, where the first interface is printed over a plurality of pages (URL-encoded bar code symbols printed on the plurality of pages, col. 3, lines 4-67).

Regarding claim 18, Knowles further teaches a printer according to any one of claims 1 to 4 or 6 to 10, wherein the first surface is defined by a substrate (substrate, col. 9, lines 60-67).

Regarding claim 19, Knowles further teaches a printer according to claim 18, wherein the substrate is laminar (print media such as paper, col. 12, lines 40-46).

Regarding claim 20, Knowles further teaches a printer according to claim 11, wherein the tags are disposed at predetermined positions on the first surface (i.e., center, fig. 6).

Regarding claims 22 & 26, Dymetman further teaches a printer, wherein the tags are disposed on the first surface within a tessellated pattern (Fig. 3) comprising a plurality of tiles, each of the tiles containing a plurality of tags (col. 7, lines 42-52).

Regarding claim 23, Dymetman further teaches a printer, wherein the tiles interlock with each other (fig. 3, col. 12, lines 25-67) to substantially cover the first surface.

Regarding claims 24-25, Dymetman further teaches a printer, wherein the tiles are all of a similar shape (squares, fig. 3).

Regarding claim 27, Knowles further teaches a printer according to claim 11, wherein each of the tags includes at least one common feature (URL address, fig. 7) in addition to the second identity data.

Regarding claim 28, Knowles further teaches a printer according to claim 27, wherein at least one common feature is configured to assist finding and/or recognition of the tags by associated by tag reading apparatus (URL coded data are read by barcode reader, fig. 1).

Regarding claim 29, Knowles further teaches a printer according to claim 27, wherein the at least one common feature is represented in a format incorporating redundancy of information (URL encoded link to Internet site, fig. 6-7).

Regarding claim 30, Dymetman further teaches a printer, wherein the at least one common feature is rotationally symmetric (fig. 3, col. 12, lines 30-56) so as to be rotationally invariant.

Regarding claim 31, Dymetman further teaches a printer, wherein the at least one common feature is ring-shaped (fig. 10).

Regarding claims 32-35, Dymetman further teaches a printer, wherein each of the tags includes at least one orientation feature (orientation marker 206, fig. 3, col. 12, lines 30-67) for enabling a rotational orientation of the tag to be ascertained by associated tag reading apparatus (detection device, col. 8, lines 40-65).

Regarding claim 36, Dymetman further teaches a printer, wherein each of the tags includes at least one perspective feature for enabling a perspective distortion (col. 5, lines 39-46 and col. 7, lines 42-62) of the tag to be ascertained by associated tag reading apparatus.

Regarding claim 37, Dymetman further teaches a printer, wherein at least one perspective feature includes at least four-features (orientation, page location, position, and size, col. 12, lines 30-67) which are not coincident.

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Regarding claim 38, Dymetman further teaches a printer, wherein each tag includes plurality tag elements (orientation, location of zones, fig. 3, col. 12, lines 30-67), the first and second identity data each being defined by a plurality of the elements.

Regarding claim 39, Dymetman further teaches a printer, wherein the tag elements are disposed in one or more arcuate bands around a central region of each tag (fig. 6b).

Regarding claim 40, Dymetman further teaches a printer, wherein there are a plurality of the arcuate bands disposed concentrically (fig. 6b) with respect to each other.

Regarding claim 41, Dymetman further teaches a printer, wherein each element takes the form of a dot (fig. 5a) having a plurality of possible values.

Regarding claim 42, Dymetman further teaches a printer, wherein the number of possible values is two (ones and zeroes, fig. 5a).

Regarding claims 43-44, Dymetman further teaches a printer, wherein when representing one of the possible values, the tag elements absorb, reflect or fluoresce electromagnetic radiation of a predetermined wavelength or range of wavelengths (UV ink, cols. 11-12) to a predetermined greater or lesser extent than the first surface.

Regarding claims 45-46, Dymetman further teaches a printer, wherein the tags are slightly visible (visible or invisible, col. 12, lines 65-67) to an average unaided human eye under daylight or ambient lighting conditions.

Regarding claims 47-48, Dymetman further teaches a printer, wherein the first identity data is represented in a format incorporating redundancy of information (orientation of the page, col. 12, lines 30-67).

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Regarding claims 49-50, Dymetman further teaches a printer, wherein the printer is an ink printer (UV ink, col. 12, lines 18-25).

Regarding claim 51, Dymetman further teaches a printer includes a separate ink channel for printing the tags (UV inks for printing tags, col. 12, lines 1-67).

Regarding claims 53-54, Tanaka also teaches multi-color inks (CMYK, col. 9, lines 1-6).

Regarding claim 55, Dymetman further teaches a printer, wherein at least a plurality of the tags are disposed stochastically upon the first surface (figs. 3-10).

Regarding claim 56, Knowles further teaches a printer, wherein the tags disposed in regular array on the first surface, in accordance with the coded layout data (fig. 6).

Regarding claims 57-58, Dymetman further teaches a printer, wherein the array is rectangular (fig. 6a) and triangular (fig. 5b).

Regarding claim 59, Dymetman further teaches a printer, wherein the tags are tiled over the first surface (col. 7, lines 42-52).

Regarding claim 60, Tanka further teaches the printer includes printing mechanisms for printing opposite faces of the page simultaneously (simultaneous both sides printing, col. 11, lines 49-59).

Claims 61-65, 67-68, 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knowles, Dymetman, Tanaka as described in claims 1 above, and in view of Kovacs et al (U.S. 5932630).

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Regarding claims 61, combinations of Knowles, Dymetman, Tanaka do not explicitly disclose wherein the printing mechanism includes an inkjet printhead for printing ink onto the first surface.

Kovacs, in the same field of endeavor for printing, teaches the printing mechanism includes an inkjet printhead (ink jet printing system, col. 2, lines 6-10) for printing ink onto the first surface.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Knowles, Dymetman, Tanaka as per teachings of Kovacs because of a following reason: (ink jet printing system provide simpler, lower cost device and high speed printing capability, Kovacs, col. 2, lines 50-55).

Therefore, it would have been obvious to combine Knowles, Dymetman, Tanaka with Kovacs to obtain the invention as specified in claim 61.

Regarding claim 62, Kovacs further teaches a printer, wherein the printhead is a drop on demand inkjet printhead (col. 2, lines 6-10).

Regarding claim 63, Kovacs further teaches a printer, wherein the printhead is a pagewidth printhead (col. 14, lines 6-10).

Regarding claim 64, Kovacs further teaches a printer, wherein the printhead is configured to deliver a plurality of inks colors (CMYK inks, col. 1, lines 15-20) onto the first surface with one printing pass.

Regarding claim 65, Kovacs further teaches a printer, wherein the printhead includes electro-thermal bend actuators (thermal ink jet head, col. 2, lines 38-55) to eject the ink onto the first surface.

Regarding claim 67, Kovacs further teaches a printer including a forced filtered (airtight enclosure, col. 4, lines 13-26) air delivery mechanism for keeping nozzles of the printhead relatively free of paper dust.

Regarding claim 68, Kovacs further teaches a printer, wherein the printer includes moving nozzles chamber (col. 2, lines 6-67).

Regarding claim 70, Kovacs further teaches an interface surface (paper interface surface, col. 4, lines 4-8) produced by a printer.

Regarding claims 66 & 69, Tanaka teaches a printer including a dual printing mechanisms for printing opposite faces of the page simultaneously (simultaneous both sides printing, col. 11, lines 49-59).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knowles, Dymetman, Tanaka as described in claim 1 and 17 above, and in view of Golicz (U.S. 5586710).

Regarding claim 21, Knowles does not explicitly teach a printer further including a binding mechanism for binding the pages into a bound document.

Golicz, in the same field of endeavor for printing, teaches a printer including a binding mechanism for binding the pages into a bound document (laser printers incorporate a stapler to provide optional binding of completed document, col. 1, lines 15-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Knowles, Dymetman, Tanaka as per teachings of Golicz because of a following reason: (1) to prevent pages of document (print job) falling out.

Therefore, it would have been obvious to combine Knowles, Dymetman, Tanaka with Golicz to obtain the invention as specified in claim 21.

Response to Arguments

Applicant's arguments filed 6/3/04 have been fully considered but they are not persuasive.

- Regarding to amended claim 1, the applicants argued the cited prior arts of record (US 6622917 to Knowles), US 6330976 to Dymetman), and US 6145434 to Tanaka) fails to teach and/or suggest the cited features/limitations as cited in claim 1. Specifically, the applicants argued the (1) bar code reader as taught by Knowles can only read visible coded information on

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a print medium, but not invisible coded information; (2) fails to teach a printer which can print both visible markings and invisible coded data simultaneously.

In response, the examiner first notes to the applicants that limitations/features added to claim 1 as the results of canceling and incorporating limitations/features from claim 10 & 52. Note: claim 10 was previously rejected under Knowles in view of Dymetman; claim 52 was previously rejected under Knowles in view of Tanaka. Therefore, amended claim 1 is currently being rejected under Knowles, Dymetman, and further in view of Tanaka. The examiner relies upon Dymetman (teachings of invisible coded data using invisible inks such as UV, infrared ink, phosphorescent ink, or magnetic ink used by print media supplier, col. 11, lines 45 to col. 12, lines 25) and Tanaka for the teachings of simultaneously printing visible markings and invisible coded data. The combinations result as printing bar code using invisible inks (UV inks) and visible markings (i.e. text, image, character) using visible inks simultaneously. Notes: invisible inks such as magnetic ink as taught by Dymetman have been well known in the art for barcode scanning (col. 12, lines 18-22). In other words, coded data can be printed via using either visible inks or invisible inks. Dymetman also teaches a pointer device 502 (fig. 2), which is a scanning device for reading both visible and invisible coded data. Therefore, barcodes as shown in figs. 8-9 (Knowles) can be printed using invisible inks and texts as shown in fig. 8-9 can be printed using visible inks, and both can be printed simultaneously as taught by Tanaka (also notes: printing coded data and text simultaneously are well known in the art, the examiner have also cited an additional reference showing such teaching in Conclusion Section.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US 6137590 to Mori, teaches a printer that is capable of printing both coded data and image data at the same time.
- US 6072871 to Ur, teaches a printer for printing both coded data and texts simultaneously.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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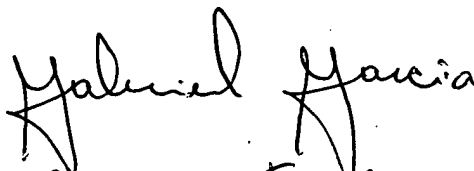
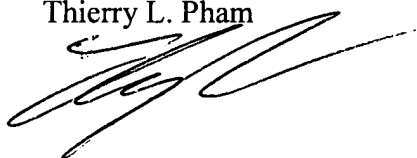
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thierry L. Pham whose telephone number is (571) 272-7439. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571)272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thierry L. Pham


primary Examiner
Gabriel Garcia